

RIVER BANK STABILITY MAPS

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GSC MAP 11-1973  
**RIVER BANK STABILITY MAP**

To accompany  
**THE STABILITY OF NATURAL SLOPES IN THE MACKENZIE VALLEY**  
by J.A. Code

Environmental Social Program Report 73-9

Prepared by the Department of Energy, Mines and Resources  
for the Environmental-Social Program, Northern Pipelines

LEGEND

GEOLOGIC AGE	DESCRIPTION	MAP NOTATION	MODE OF EROSION	TYPICAL SLOPE CHARACTERISTICS
Quaternary and Recent		Qs	Negligible, some mass transport of beach and lower slope material by water and river ice.	Stable slopes, vegetated, usually 15° or less. Burnt areas unstable at 5° or less.
	Granular and fine grained (cohesive) uncemented clastic sediments. (Soil cover)	Qa	Mass movement confined to active layer. Failures also shallow in non-permafrost areas. Mainly earthflows, detachment slides, solifluction. Gully erosion and slope-wash.	Slope angle 15-35°. Displaced material usually highly deformed due to high moisture contents in active layer. Slopes usually less than 100 feet high.
		Ql	Large scale, retrogressive failures (translational slides, slumps, flows); usually accompanied by large scale gulying. Characteristic of glacio-lacustrine sediments overlain by glaciofluvial sands.	Steep slopes greater than 100 feet in height. Displaced blocks usually relatively undeformed during movement, sometimes consist of frozen soil and often exhibit backward tilt.
Tertiary	Weakly cemented mainly clastic sediments-sandstone, limestone, conglomerate, shale.	Te	Gulying, slope wash, infrequent slumping.	Moderate to steep upper slope, talus accumulation at toe consisting of granular and fragmented rock debris.
Cretaceous	Weak soft shale, weakly cemented sandstone and siltstone.	Ka	Gulying, slope wash, shallow active layer slides.	Bank height less than 100 feet. Weathered slopes generally less than 35°.
		Kl	Large scale retrogressive failures of high shale banks.	Steep shale banks unstable at heights of over 100 feet. Low shale content slopes are less susceptible to slumping.
Devonian	Mainly well cemented, resistant sedimentary rock. Limestone, sandstone, dolomite shale.	K	Undifferentiated	
		D	Rockfalls, infrequent slumping. Some high shale content banks more susceptible to gulying and slumping.	Resistant rocks form steep upper valley walls, flatter talus accumulation at toe. Softer shales erode to low angle valley walls (< 35°).

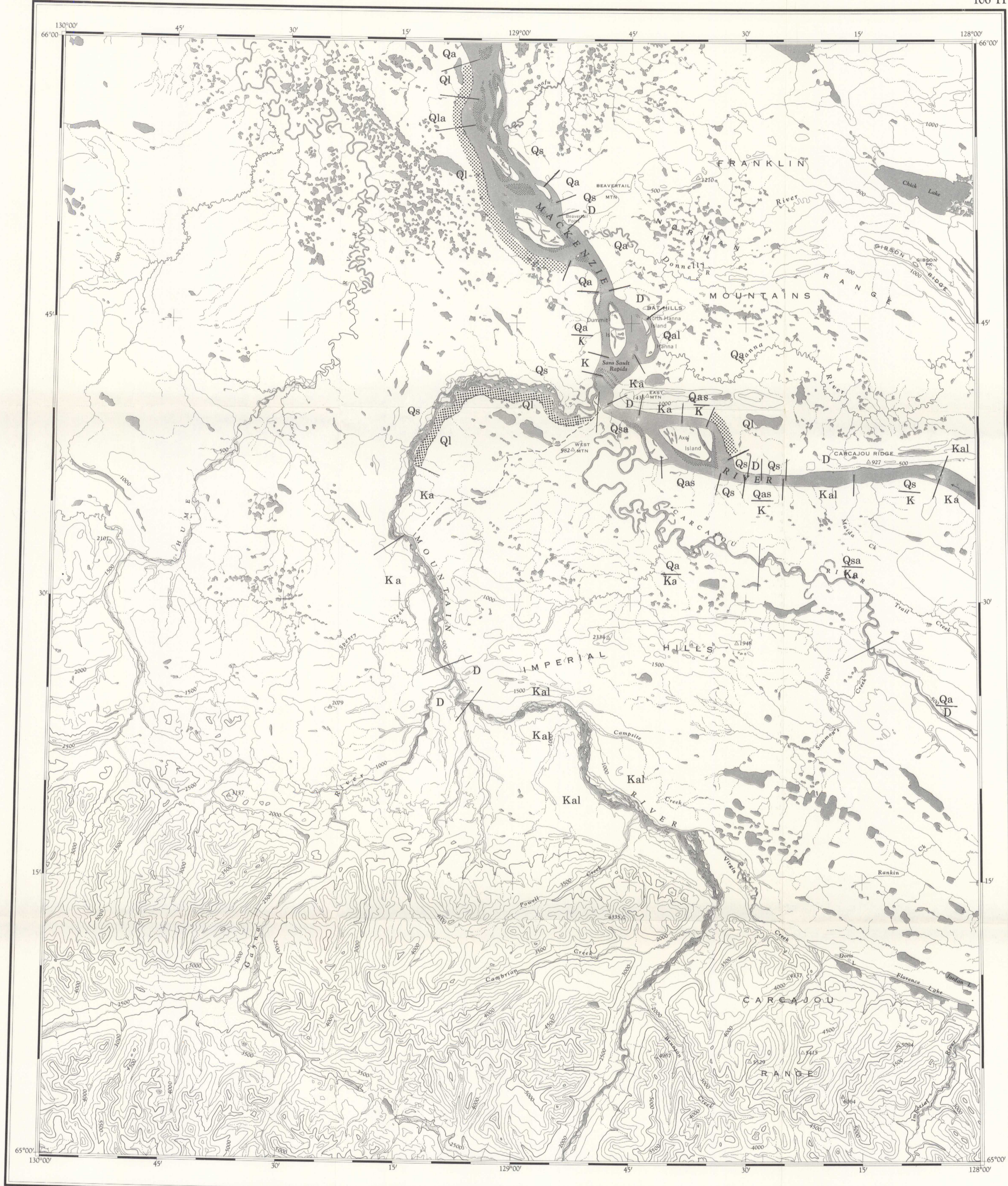
NOTES

- Vertical sequences of the above units observed in the field are shown with components divided by horizontal stroke. For example  $\frac{Qa}{K}$  denotes Quaternary with shallow slides over Cretaceous sediments. Thicknesses of units not measured.
- Notations showing combinations of above subdivisions such as Qas indicate predominance of Qa with subordinate Qs.
- Transitions between units are often gradual rather than abrupt; in such instances boundaries are chosen arbitrarily.
- Where the above notation is applied to meandering rivers, instability if indicated applies only to outside banks of meander loops.

Compiled by J.A. Code from information collected in 1971-1972

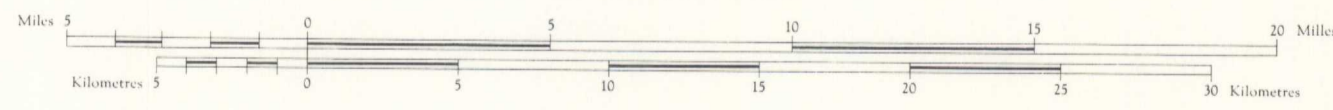
Cartography by Geological Survey of Canada

Printed by Surveys and Mapping Branch 1973



**SANS SAULT RAPIDS**  
NORTHWEST TERRITORIES  
DISTRICT OF MACKENZIE

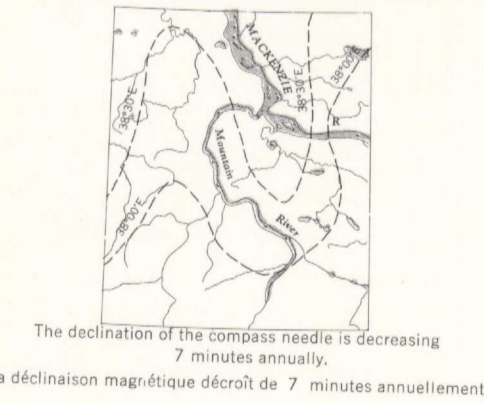
Scale 1:250,000 Échelle



Transverse Mercator Projection  
North American Datum 1927  
Contour Interval 500 feet  
Elevations in feet above Mean Sea Level

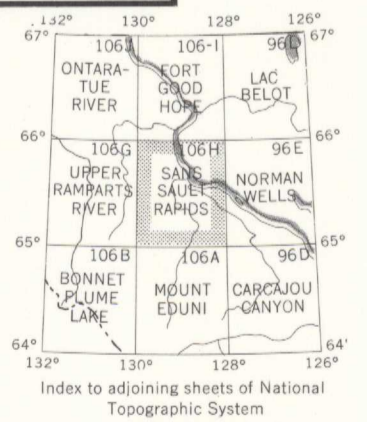
Projection Transverse de Mercator  
Réseau géodésique nord-américain unifié 1927  
Équidistance des courbes: 500 pieds  
Élévations en pieds au-dessus du niveau moyen de la mer

THE DECLINATION OF THE COMPASS NEEDLE 1959  
DECLINAISON MAGNÉTIQUE EN 1959



- Road, all weather ..... Chemin, toute saison
- Wagon or winter road ..... Chemin de terre ou d'hiver
- Trail or portage ..... Sentier ou portage
- Town ..... Ville
- Village or settlement ..... Village ou hameau
- Post office ..... Bureau de poste
- Horizontal control point ..... Point géodésique
- Boundary monument ..... borne frontalière

- Stream intermittent or dry ..... Cours d'eau intermittent ou à sec
- Indefinite ..... Imprécis
- Rapids, falls ..... Rapides; chutes
- Marsh or swamp ..... Marais ou marécage
- Intermittent lake ..... Lac intermittent
- Depression contour ..... Courbes de cuvette
- Spot elevation, in feet ..... Repère de nivellement en pieds



Index to adjoining sheets of National Topographic System  
Tableau d'assemblage du Système de Référence Cartographique National